

Will your R&D Project Make it To Market?

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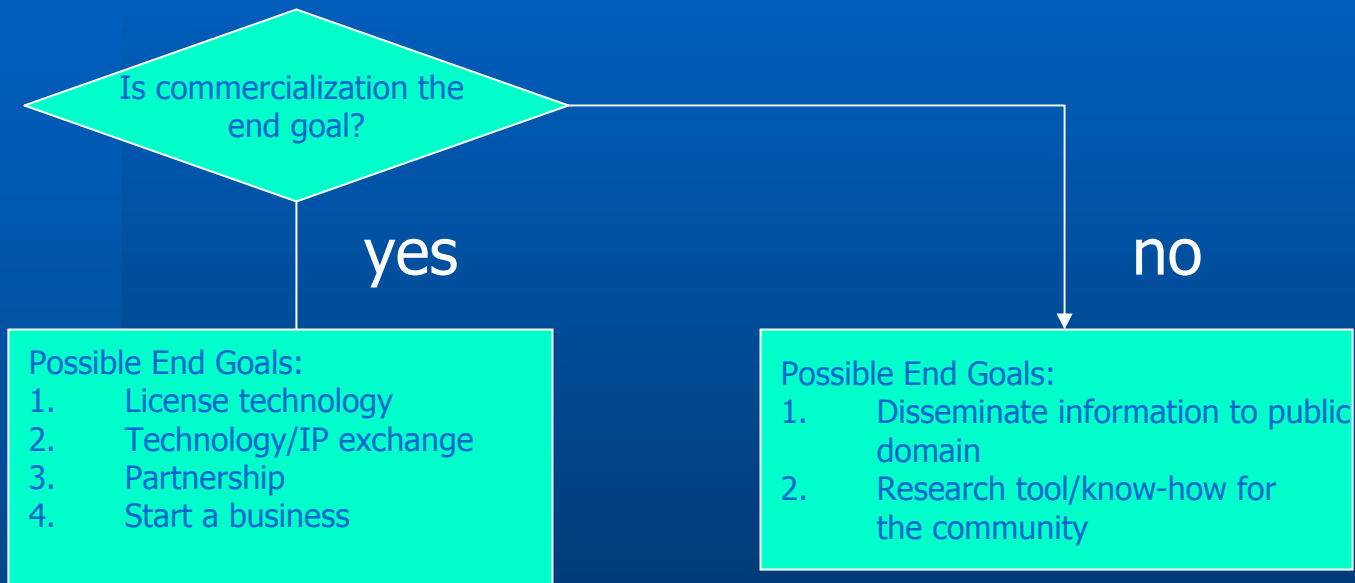
DAWNBREAKER®

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DAWNBREAKER®

- ◆ Professional Services firm - Rochester, NY
- ◆ Worked with over 1000 small R&D firms
 - ◆ SBIR/STTR Program
 - ◆ Department of Energy, Navy, EPA, DoC, NIH, NSF
- ◆ Business Planning for Scientists & Engineers
- ◆ 50% receive private sector financing, increased sales, increased jobs
 - *12-18 months of completing Commercialization Assistance Program (CAP)*

Technology Maturation End Goals



Dilemma for R&D firms (University Researchers) and their sponsors

- Scientists & engineers are good at R&D
- Good at technical proposal writing
- Don't know how to transition products to the market place
- Don't understand the options available for commercialization or implications of choices made
- Hard for companies and their sponsors

What is Commercialization?

- “The process of developing markets and producing and delivering products or services for sale (whether by the originating party or by others)..... commercialization includes both government and non-government markets.”
 - *National Science Foundation SBIR Solicitation*

What is a commercialization strategy?

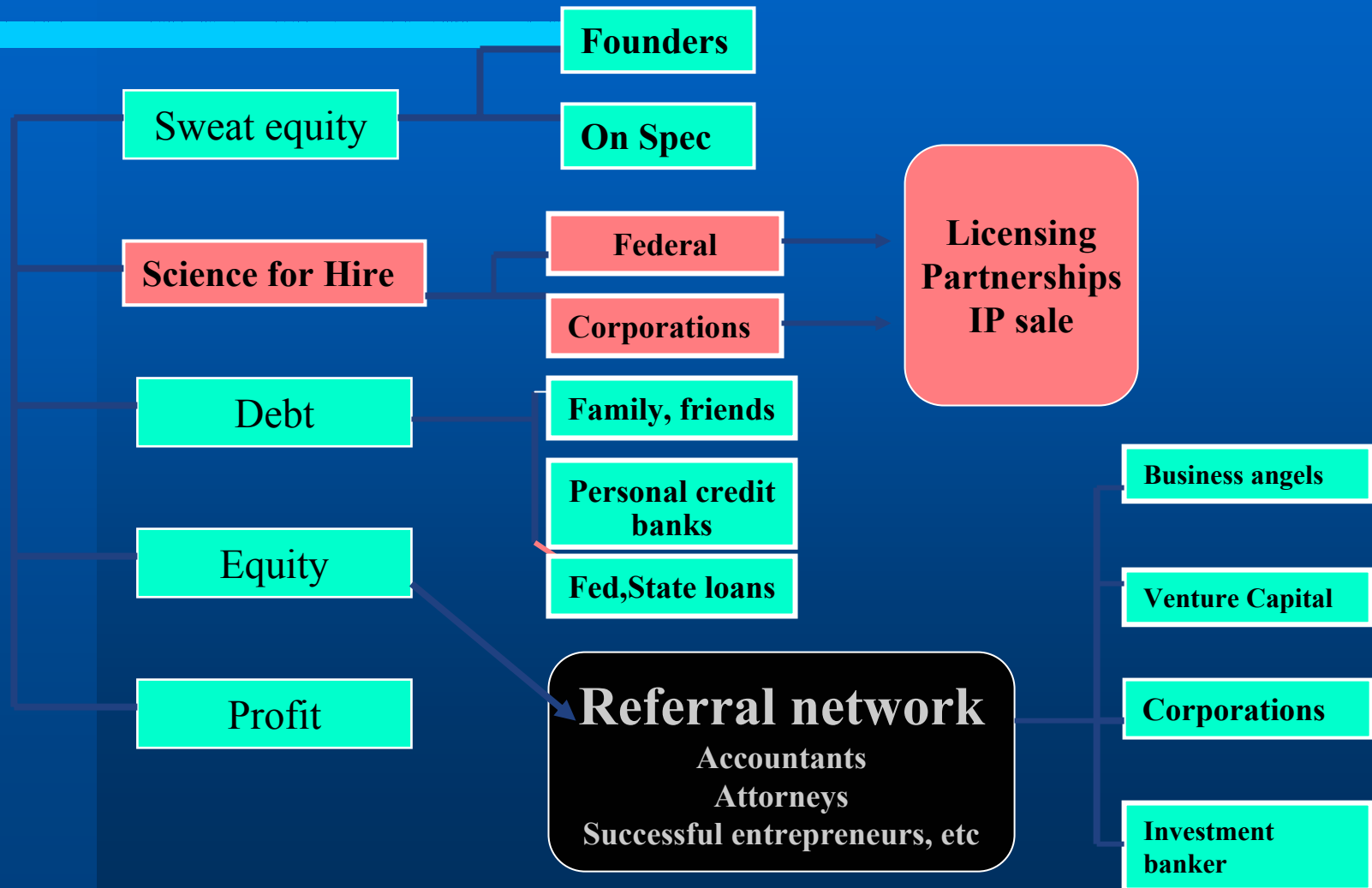
- The series of financing options that a party entertains to move its technology from concept to the marketplace

Milestone

How funded?

- | | |
|---|---------------------|
| – Concept development..... | Federal R&D funding |
| – Business case analysis..... | G&A |
| – Prototype development..... | Federal R&D funding |
| – Intellectual property protection..... | College/University |
| – Beta testing..... | Corporate partner |
| – U/L approval..... | Retained earnings |
| – Test market introduction..... | ??? |
| – Marketing..... | ??? |
| – Scale-up of Production..... | ??? |

Roadmap to Financing Options



Selecting a Commercialization Strategy

- ◆ Iterative process..... build and test
- ◆ Articulate at the outset – customer need & urgency
- ◆ Revisit
 - as you collect additional market data
 - as amount of funds required increases
 - as you develop the business case
 - during negotiations with partner/investor

Factors which affect commercialization strategy

- ◆ Mission
- ◆ Vision
- ◆ Business philosophy
- ◆ Your current situation
- ◆ Market opportunity
- ◆ Competitors

Mission

- ◆ Business functions
- ◆ Products and technologies
- ◆ Markets served
- ◆ Sustainable competitive advantage

Vision elements *(five year horizon)*

- Products, services, IP inventory
- Market goals - customers served, market niche, geographic region, market share
- Financial goals - revenues, rates of return
- Image - how you'll be perceived by customers, competitors, employees, community

Typology of Visions

	Revenue	Employees	Purpose	Public
Life-Style	\$2 million	30 - 40	Support owners	Private
Foundation	\$10 – 30 million	40 - 400	Start new industry	Private
High Potential	\$20 – 30 million	500+	Growth & value	Go public

Business Philosophy

- ◆ I don't want to give up control
- ◆ I want to try it all
- ◆ I want to enjoy myself
- ◆ I don't care who gets rich

Current situation

- ◆ Financial health
- ◆ Sustainable competitive advantage
- ◆ Stage of product/technology development
- ◆ Management
- ◆ Market readiness
- ◆ Risk: technology, market, management

Competitors

- Identity of competitors
- Strengths and weaknesses
- Opportunities, threats and trends
- Prospects for collaboration

Sample strategy - Licensing

- ◆ Vision: Life-style company
- ◆ Philosophy: Do what I enjoy
- ◆ Financing methods

– Start-up	Sweat equity
– Concept development	Federal Funding
– Intellectual property	Retained earnings
– Application development	Licensee
– Production	Licensee

Strategy - Strategic alliance

- ◆ Vision: Foundation company (R&D and manufacturing)
- ◆ Philosophy: I don't want to give up control
- ◆ Financing methods
 - ↙ Start-up Sweat equity
 - ↙ Concept development Federal R&D funding
 - ↙ Intellectual property Retained earnings
 - ↙ Prototype dev Federal R&D funding
 - ↙ Production scale up Equity investor, converted to debt
 - ↙ Marketing/sales Strategic alliance

Combination of strategies

Parent company

Life-style firm



Spin-off

*High potential
venture*

Challenges for scientists working within large organizations

- Time
- Incentives
- Evaluation criteria
- Access to resources
- Risk/Reward

Current business environment

- Private Sector Advanced Technology
 - 90's Cutback in Corporate R&D
 - Increasing need for Federal R&D funding
 - Poor ROI for Tech companies unless early R&D government funding
 - Energy technologies need government incentives

U.S. Energy Industry

- Undergoing transformation
 - Deregulation of power generation
 - More stringent environmental standards and regulations
 - Climate change concerns
 - Other market forces

Energy Crisis

- Needs not in synch with market mechanisms
- Advanced technology part of long-term solution
- Crowded tech marketplace
- Need for business planning with 2-7 year window
- Potential strong return for 2007-2012
 - Develop tech with strong sustainable competitive advantage
 - Lay foundation for collaboration with industry

Technology Commercialization Vehicles

- CRADA
 - Small or large company
 - Company itself may need a partner
- Licensee
- License to Spin-Off
 - PI can go with company
- Joint venture
- Sale of technology

Principal Investigators

- Need to take a more active role in assuring commercialization success
- Incentives need to be provided

..... in summary

Keys to successful commercialization:

- Technology
- Markets
- Management
- Financing

Questions?
